Linux Troubleshooting 5 days

This course is designed to give the Linux system administrator an in-depth look at common and not so common Linux system problems. Linux system problems explored in this course are frequently encountered with the administration of Linux Systems. This course takes the approach to troubleshooting with a "break-fix" philosophy, 25% lecture, and 75% lab intensive content. Lab exercises contain a pool of over 120 simple and complex real-world troubleshooting scenarios. Lab work is flexible enough to satisfy the expectations of experienced to intermediate administrators through ranked difficulty of scenarios. Students will find the approach of this course of structure with flexibility very rewarding. Lab tasks let students choose the type of scenarios they would like to tackle, with hints, helps, and solutions to make learning very effective.

Prerequisites: Equivalent knowledge of the GL120, GL250, and GL275 courses

Courseware supports latest versions of Red Hat Enterprise Linux, Fedora Core, SUSE LINUX Professional, and SUSE LINUX Enterprise Server.

Suggested course duration: 5 days.

Detailed Course Outline

Section 1 Troubleshooting Methodology

Section 2 Tools

- Common Troubleshooting Tools
- RPM Queries and Verification
- src Packages and spec Files
- strace, ltrace, lsof and fuser
- ipcs and ipcrm
- vmstat, iostat, mpstat, and sar
- ifconfig, ip, arp and route
- Name Resolution
- netstat and rpcinfo
- nmap and nc
- tcpdump and ethereal

Lab 2

- Exploring and documenting current system configuration state
- Troubleshooting techniques with RPM, process related tools, and, network related tools

Section 3 Rescue Environments

- Rescue Procedures
- Recovery Examples

Lab 3

- Using rescue disk
- Using mount and chroot to access hard disk
- Reinstalling the MBR with grub-install

Setting up networking statically
Mounting an NFS share
Installing an RPM using the root option

Section 4

Linux Boot Process
Booting Linux
Boot Process Troubleshooting
Process Management and Troubleshooting
File Systems Concepts and Troubleshooting
Backups Concepts and Troubleshooting

Lab 4

Troubleshooting common system and daemon errors
Restoring files from backup
Booting Scenarios: 6 exercises
Process Scenarios: 3 exercises
Backup Scenarios: 1 exercise

Section 5

Networking Commands Review and Troubleshooting
IP Aliases vs Virtual Interfaces
xinetd Concepts and Troubleshooting
TCP Wrappers Concepts and Troubleshooting
iptables Concepts and Troubleshooting

Lab 5

iptables Scenario: 2 exercises
Networking Scenarios: 4 exercises
TCP Wrappers Scenarios: 2 exercises
xinetd Scenarios: 4 exercises

Section 6

X11 Concepts, Troubleshooting, and Server Operation
X11 Concepts and Troubleshooting
Syslog Concepts and Troubleshooting
RPM Concepts and Troubleshooting
CUPS Troubleshooting
at & cron Troubleshooting

Lab 6

at & cron Scenarios: 4 exercises
CUPS Scenerio: 2 exercises
RPM Scenarios: 4 exercises
at/cron Scenarios: 4 exercises
Syslog Scenarios: 3 exercises
X Scenarios: 7 exercises

Section 7

Users and Groups Troubleshooting
PAM Concepts and Troubleshooting
Filesystem Quotas and Quotas Troubleshooting

FACL's and ACL's for users and/or groups
File Access Control Lists and Troubleshooting

Lab 7

Filesystem Scenarios: 6 exercises
PAM Scenarios: 4 exercises
Quota Scenarios: 5 exercises
User and Group Scenarios: 5 exercises

Section 8

DNS Concepts and Troubleshooting
Apache Concepts and Troubleshooting
FTP Concepts and Troubleshooting
Squid Concepts and Troubleshooting

Lab 8

Apache Scenarios: 5 exercises
DNS Scenarios: 4 exercises
FTP Scenarios: 2 exercises
Squid Scenarios: 4 exercises

Section 9

Samba Concepts and Troubleshooting
Sendmail Concepts and Troubleshooting
Postfix Concepts and Troubleshooting
IMAP & POP Concepts and Troubleshooting

Lab 9

IMAP/POP Scenarios: 3 exercises
Postfix Scenarios: 5 exercises
Samba Scenarios: 3 exercises
Sendmail Scenarios: 4 exercises

Section 10

Kernel Modules and Troubleshooting
Logical Volume Management and Creating Logical Volumes
LVM Deployment Issues and Troubleshooting
RAID Concepts and Troubleshooting
Lightweight Directory Access Protocol and LDAP Troubleshooting

Lab 10

Kernel Module Scenarios: 3 exercises
LDAP Scenarios: 3 exercises
LVM Scenario: 1 exercise
NIS scenarios: 2 exercises
RAID Scenario: 3 exercise